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ABSTRACT

An instructional program was developed and implemented at Kansas State University to provide career advancement training for respiratory therapy aides and technicians who have had on-the-job training in clinical experience in the basic respiratory therapy skills. The program was implemented under the auspices of TELENET, the Kansas Regents Continuing Education Network, which is a teleconferencing delivery system based on the campus of Kansas State University at Manhattan, Kansas. The advantages of the program are that it provides for active participation by students and allows them to receive immediate feedback. In the respiratory training program, student involvement is increased by providing the students with detailed note-taking guides to be filled out during lectures, and with comprehensive bibliographies at the beginning and end of the course. From results of a survey, which was completed by 24 (67 percent) of those who completed the program during its first year of operation, the project staff concluded that the use of the TELENET delivery system enabled many individuals to receive training in respiratory therapy who would not otherwise have been able to receive it. (MN)

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TRADITIONAL AND NONTRADITIONAL EDUCATIONAL ELEMENTS
USING TELECOMMUNICATION

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TRADITIONAL AND NONTRADITIONAL EDUCATIONAL ELEMENTS USING TELECOMMUNICATION

Teleconferencing and audioconferencing are used interchangeably. It describes the meeting of people across distances by means of telephone equipment which is a two-way audio connection. Both traditional and nontraditional components of education are available for use with teleconferencing. The didactic portion of the curriculum is essentially traditional in that the students meet at specified times and days, the material is presented by an instructor in a lecture/discussion format, tests are scheduled regularly, and grades are assigned. The nontraditional aspect of the didactic curriculum is the mode in which it is transmitted to the students.

All classes are taught under the auspices of TELENET, (Kansas Regents Continuing Education Network), based on the campus of Kansas State University at Manhattan, Kansas. Teleconferencing has become a popular mode of delivery for university credit and non-credit courses and for professional updating and training sessions. Kansas TELENET has been in existence for more than 14 years, and more and more kansans are looking toward this medium to meet their professional needs. Over fifteen thousand students used the network in 1982 by way of 36 TELENET locations throughout the state.

Only two students are needed at each location to maintain that site for a program. Each TELENET site has a monitor who distributes materials, takes the roll, collects the examinations, and closes the site after each session.

The classrooms in which the TELENET sessions are held each week are different from the regular classroom. Each location has a high fidelity public address speaker and microphones placed around the room in convenient locations to allow two-way communication between the participants and the instructor. Students may ask questions at any time and all students along the network can hear the conversation. Students are supplied in advance with elaborate, detailed note-taking guides, complete lists of related texts, and a bibliography of references for the entire course.

The two-way telephone communication does not exclude the use of traditional education principles; rather, the implementation of good teaching techniques becomes even more necessary with teleconferencing as immediate visual feedback is not available to the instructor, and the instructor cannot use nonverbal communication to emphasize certain points.

Respiratory therapy is a challenging health profession which requires the expertise of qualified, dedicated professionals at various educational levels. This includes Registered Respiratory Therapists and Certified Respiratory Therapy Technicians. All

levels of qualified and credentialed personnel are in short supply even though employment opportunities are excellent and the salaries are very good for the amount of educational preparation required, as CRTT programs are approximately one year in length. Unfortunately, most programs in the United States are located only in the large urban areas and the student must move to that area if he wants to enroll in the program, leaving home and employment while pursuing a career advancement. Some programs utilize correspondence study in which little or no contact is made between the faculty and the student. Teleconferencing provides an outreach educational opportunity, enabling students to remain in the home area and in their present employment while completing the requirements for their credentialing as Certified Respiratory Therapy Technicians.

The purpose of offering the present program via TELENET is to provide education at a reasonable cost and with reasonable convenience to individuals who may or may not have had previous respiratory therapy experience. After receiving regional requests for establishing a program, a survey was distributed to further determine interests and needs. At the time of the survey, there was only one program in existence, other than nontraditional self-study programs, that offered the opportunity for career advancement. However, its geographical location made it inaccessible to those living in the extreme western areas of the state. Results

of this survey and further discussion with hospital respiratory therapy department directors indicated that there existed sufficient interest from student and employer to provide a program.

The program was set up to offer the opportunity for advancing education to the Respiratory Therapy aides and technicians who have had on-the-job training in clinical experience in the basic respiratory therapy skills. Formal instruction in theory and practice in all areas of the profession was covered in the classroom. Only those students who had verified experience in the basic respiratory therapy skills were considered. Four hours of instruction was provided each week, and five eight-week modules made up the program, followed by clinical instruction which was scheduled at regional hospitals, as available, and on an individual basis. Students were tested during the clinical application course to determine how much, if any, clinical instruction they required. Video presentations by the instructors at each TELENET site would precede many class lectures, to aid in demonstrating material and procedures. These video presentations were viewed prior to the start of the lecture, with discussion and questions allowed by students immediately afterwards.

In developing a program for teleconferencing, one of the primary objectives of the course is to have a curriculum development that is knowledgeable of the persons who are to receive and

to interact with the curriculum. We must know our students. We have various learning theories and principles to assist us in our educational decision-making, but we must gather specific information on individuals to ascertain whether our curricular recommendations are appropriate for individual students.

With the new directions in learning that have occurred, we find it essential that the curriculum focus on how learning has occurred as a result of specific teaching strategies. Each of the students has been exposed to the fundamentals of respiratory therapy in participating in on-the-job training, however, the level of instruction at each of those rural hospitals has to be taken into account in the overall structure of the curriculum. The need for other than basic procedures does not always occur at their place of work, and to utilize procedures that will not be used poses a problem in trying to offer a full range of therapeutic procedures.

Students who enroll in a technician's course for certification possess certain learning styles as a result of their prior and continuing experiences in their environment. The entire curriculum has to be designed so that their learning styles will be complemented. TELENET fulfills the requirements for effective adult education. There is active participation by the students, as TELENET allows voice contact between instructor and students. Feedback is immediate, as the students may ask questions, comment, discuss, or

request clarification at any time during the lecture/discussion. Students are encouraged to participate by the faculty who call upon students by name at the various classroom locations. This is an area of concern, as with teleconferencing there is a need to determine the best way to "get the message" to the students. Involved in the message design is the ability to tie in directly with the objectives as they were designed to meet the needs of the students. Involvement of the students can be developed by the instructor and utilized at each class session. Involvement activities will have more impact, be more effective, and be easier to implement if they are considered for the course at the time of design.

Motivation can be built into the course at all points to renew the student's interest and desire to achieve the course objectives. Student involvement is increased by providing each student with detailed note-taking guides to facilitate the learning process. Students complete the note-taking guide as the instructor lectures or discusses the course material. Instructors may also increase the student involvement by supplying a comprehensive bibliography both at the beginning and during the course. Throughout the design stage, comprehensive course-related materials should be collected. These materials can be used by both students and faculty for further access to information. (1)

Questionnaires were sent to thirty-six graduates of the program to evaluate all areas of instruction and to determine whether the program would be offered again using TELENET. In doing the study, the utilization of a questionnaire created a problem in that non-responders' refusal to participate may be associated with a negative attitude toward the subject or toward the sponsor of the program. This may have a bearing on the validity of the results. Seventeen students had withdrawn from the course and were not included in the study, since their data would not contribute to the final computation of the results sought. The reasons cited by them for dropping out of the program were: (1) difficulty of subject matter, (2) failure of course work, (3) excessive amount of study time created a schedule conflict with employment, (4) moved from the state, and (7) no reason given (unable to contact student).

Twenty-four questionnaires, or sixty-seven percent (67%), were returned. All of the students had on-the-job training as prior experience in respiratory therapy. Over fifty percent (50%) were twenty-one to twenty-five years of age. The majority, seventy percent (70%), worked in hospitals with a bed capacity of fewer than fifty beds. Sixteen of the respondents (45%) finished high school or one year of college and were working full time in their respiratory therapy departments. Fourteen, or fifty-eight percent (58%), had enrolled in the program seeking advancement in their respective

respiratory therapy departments, while eight sought to leave their locality after completion of the program.

A Likert Scale evaluation tool was developed by the author to determine the students' attitude toward the presentation of a respiratory therapy technician program using both traditional and non-traditional components. This was the first time that a total program leading to a certificate of completion (required to sit for entry level examination) was offered over the TELENET communication system in Kansas. Content, presentation, and instructional methods were evaluated. The overall quality of the program was rated good to excellent by sixty-two percent (62%) of the responders. The overall curriculum was thought to be excellent by three respondents (10%), while fourteen (48%) thought it to be good. In evaluating the instructor's presentations with respect to content and clarity of the materials presented, sixty-five percent rated them as good to excellent. In comparing the TELENET presentations with in-hospital conferences, self-directed learning from journals and textbooks, and lectures by staff members in their hospitals, there was a positive response for the TELENET presentations.

Factors that significantly hampered the ability to learn using TELENET are listed according to response: (1). the fact that you could not see the instructor (20%), (2). inadequate opportunity to interact with the instructor (20%), (3). instruction was too imper-

sonal (34%), and (4). could not hear well enough (10%).

Sixteen respondents (55%) did not think that the clinical instructors were effective in transmitting information to the student, while seven (25%) did indicate that the clinical information they received was satisfactory. The reasons which were given were: (1). too unstructured and disorganized, (2). the instructor did not spend enough time in explaining the techniques and procedures, and (3). there were too many interruptions which interefered with the continuity of the instruction. The majority of respondents did not think that the format of the program was too unrealistic for learning to be accomplished; fifty percent (50%) thought that the program was too expensive, while the other fifty percent (50%) did not think that it was.

Most of the students in the program indicated that the program should continue and would recommend the program to others (65%). It was interesting to note that twenty-four of the students (83%) would not have completed a respiratory therapy technicians' program if it had not been offered on TELENET, and the same number rated the R.T. Technician Program as probably being a better mode of transmission of education than a pure correspondence program on the same subject. Of the twenty-nine students, nineteen indicated that they would not have been able to move to Wichita for their training and would not have had the opportunity for advancement in their professional field

had the TELENET program not been offered. It was shown that the pass rate for the graduates of this program was the same as the national average for programs that used the traditional methods of education. The first phase of the accreditation process offered by the Joint Review Committee for Respiratory Therapy Education has just been completed and accepted. (2)

The advantages of a CRTT respiratory therapy outreach technician program allow the student to: (1). gain credit for experience by advanced placement exam, (2). earn the CRTT credential without change in residence, (3). continue employment while attending the CRTT program, (4). become a CRTT before anticipated licensure in the state, (5). learn through traditional classroom instruction and have access to instructors during review sessions, (6). receive a certificate of completion upon graduation, (7). participate in standardized curriculum with clearly defined didactic and clinical performance objectives, and (8) have access to individualized academic advisement.

Career changes, career advancements, self-actualization, and ambition are just a few reasons for which adults are entering the higher education market. The change in student population is continual. (3) The costs of instruction, teachers, administrative overhead, and physical plant use continue to rise. However, the delivery of instruction to the student also affects the cost to the student, both in time and money. Travel to campus, campus residence and time

away from job and family, are all affected by how the instruction is delivered. The problem of instructional quality and the role of the instructor is not the only question raised by the technologies available for delivery of instruction. The difficulty of measuring the quality of instruction makes it hard to say whether telecommunications or live instruction in the form of lectures is better. What will the consumers of education prefer if instruction is offered wisely through telecommunication, as well as in traditional classroom settings?

CONCLUSION

We have to ask ourselves, "Why have we not taken advantage of the possibilities offered by telecommunications in higher education?" Has the reaction of the faculty or of the administration of the university caused the delay in offering courses via telecommunication to off-campus students? The adult learner is between the ages of 21-35, is married, has a full-time job, and lives many miles away from the campus of a university or college. (4) The development of programs in the health professions needs to determine whether or not the use of telecommunications will attract the student to improve the status of his employment.

The study has shown that further development of objectives in terms of learner behavior is necessary to determine what the learner can do after the course that could not be done prior to it. Many

students who enroll in the course are advanced in the technical areas of the specialty due to on-the-job training. However, they are not able to correlate the theory with the practical aspects, and therefore do not show an interest in the basic sciences that are stipulated in the Guidelines as essential prior to the writing of the certification examination. Perhaps the guidelines for teaching, i.e., utilizing a nontraditional component to deliver a traditional lecture, will have to be reviewed. Those institutions who do not progress with the era of high technology in higher education will find a declining student enrollment. The student has accepted this supplemental approach to the traditional methods of teaching. When is a lecture not a lecture? This is the question, and the answer is, "When it is delivered to the students via telecommunications." Evaluation of other programs by other authors indicates that the benefits to participants in teleconferencing far exceed those measured by traditional pre/post testing. (5)

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